UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/703,034	10/31/2000	Joseph R. Zbiciak	TI-30553	8913

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EXAMINER
DO, CHAT C

ART UNIT	PAPER NUMBER
2124	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No.	Applicant(s)
	09/703,034	ZBICIAK, JOSEPH R.
	Examiner	Art Unit
	Chat C. Do	2124

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _10/31/00; 1/17/01; 2/13/01_ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-15_ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-15_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

     If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____ .

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

     a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-2 and 6-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Peleg et

al. (U.S. 5,983,256).

Re claim 1, Peleg et al. disclose in Figure 8 a method of performing a dot product

operation (col. 19 lines 49-55 and col. 21 lines 27-32) with rounding and shifting in a

microprocessor in response to a single rounding dot product instruction (col. 15 lines 20-

25), the method comprising the steps of: fetching a first pair of elements (source 1 r1 and

i1) and a second pair of elements (source 2 r2 and i2); forming a first product of the first

pair of elements (i1*i2) and a second product of the second pair of elements (r2*i1);

combining the first product with the second product to form a combined product (adding

the first product and second product as seen in table 6a in col. 15); rounding the

combined product to form an intermediate result; and shifting the intermediate result a

selected amount to form a final result (col. 12 lines 64-68 and col. 14 lines 36-42).

Re claim 2, Peleg et al. further disclose the step of shifting truncates a selected

number of least significant bits of the intermediate result (col. 14 lines 36-42).

Re claim 6, Peleg et al. further disclose the step of rounding treats the

intermediate result as a signed integer, such that when an overflow occurs, the

intermediate will wrap from a largest positive value to a negative value (col. 12 lines 64-

68).

Re claim 7, Peleg et al. further disclose an overflow is not reported (col. 12 lines

64-68).

Re claim 8, Peleg et al. further disclose the step of fetching comprises the steps

of: fetching a first operand (source 1 in table 6a col. 15); fetching a second operand

(source 2 in table 6a col. 15); extracting one of the first pair of elements (r1) and one of

the second pair of elements (i1) from the first operand; and extracting another one of the

first pair of elements (r2) and another one of the second pair of elements (i2) from the

second operand.

Re claim 9, Peleg et al. further disclose the step of forming treats a one of the first

pair of elements as a signed number value (i1 in the real component of table 6a in col. 15)

and treats another one of the first pair of elements as an unsigned number value (r2 in the

real component of table 6a in col. 15).

Re claim 10, Peleg et al. further disclose the step of combining comprises

subtracting the product of second pair of elements from the product of first pair of

elements (real component of table 6a in col. 15).

Re claim 11, Peleg et al. further disclose the step of combining comprises adding

the product of second pair of elements to the product of first pair of elements (imaginary

component of table 6a in col. 15).

Re claim 12, Peleg et al. further disclose the steps of forming and combining

operate on a plurality of pairs of elements (Figure 8 and col. 21 lines 20-24).

Re claim 13, it is an apparatus claim of claim 1. Thus, claim 13 is also rejected

under the same rationale in the rejection of rejected claim 1.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 3-5 and 14 are rejected under 35 U.S.C. 103(a) as being obvious over Peleg et al.

(U.S. 5,983,256) in view of Suzuki et al. (U.S 5,276,634).

Re claim 3, Peleg et al. do not disclose clearly in detail the step of rounding by

adding a rounding value to the combined product to form the intermediate result, and

wherein the step of shifting shifts the intermediate result right by a selected shift amount.

However, Suzuki et al. disclose in Figure 25 the step of rounding (267-272) by adding a

rounding value (267) to the combined product to form the intermediate result (output of

269), and wherein the step of shifting shifts the intermediate result right by a selected

shift amount (271). Therefore, it would have been obvious to a person having ordinary

skill in the art at the time the invention is made to add a rounding method with shifting

the results as disclosed in Suzuki et al.'s invention to Figure 8 of Peleg et al.'s invention

because it would enable to avoid any overflow conditions while computing the sum of

products (col. 12 lines 64-66).

Re claims 4-5, Peleg et al. do not disclose the rounding value is 2^n and the

selected shift amount is n+1, wherein n = 15. However, Suzuki et al. disclose the

rounding value is 2^n and the selected shift amount is n+1, wherein n = 15 (col. 2 lines 59-

69 and col. 3 lines 3-9 wherein n = 0). Therefore, it would have been obvious to a person

having ordinary skill in the art at the time the invention is made to add the rounding value

is 2^n and the selected shift amount for the intermediate result is n+1, wherein n = 15 to

Peleg et al.'s invention because it would enable to avoid any overflow conditions while

computing the sum of products (col. 12 lines 64-66).

Re claim 14, Peleg et al. do not disclose the arithmetic circuit has a carry input

connected to a mid-position, wherein the carry input is asserted in response to the

rounding dot product instruction. However, Suzuki et al. disclose in Figure 25 the

arithmetic circuit has a carry input connected to a mid-position, wherein the carry input is

asserted in response to the rounding dot product instruction (267 and col. 2 lines 58-67).

Therefore, it would have been obvious to a person having ordinary skill in the art at the

time the invention is made to include a carry input connected to a mid-position in

response to the rounding dot product instruction to Peleg et al.'s invention because it

would enable to avoid any overflow conditions while computing the sum of products

(col. 12 lines 64-66).

6   Claim 15 is rejected under 35 U.S.C. 103(a) as being obvious over Peleg et al. (U.S.

5,983,256) in view of Silberfenig (U.S. 6,243,594).

Re claim 15, Peleg et al. do not disclose the above method being a cellular

telephone as an integrated keyboard connected to the processor via a keyboard adapter; a

display, connected to the processor via a display adapter; radio frequency (RF) circuitry

connected to the processor; and an aerial connected to the RF circuitry. However,

Silberfenig discloses in Figures 1-2 a cellular telephone as an integrated keyboard

connected to the processor via a keyboard adapter; a display, connected to the processor

via a display adapter; radio frequency (RF) circuitry connected to the processor; and an

aerial connected to the RF circuitry. Therefore, it would have been obvious application

to a person having ordinary skill in the art at the time the invention is made to use the

above method in the device as disclosed in Silberfenig's invention because it would

enable to improve the system of computing the dot products in signal processing (col. 19

lines 35-45).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.   U.S. Patent No. 5,903,479 to Schwarz et al. disclose a method and system for

executing denormalized numbers.

b.   U.S. Patent No. 5,666,300 to Adelman et al. disclose a power reduction in a data

processing system using pipeline registers and method therefor.

    c.   U.S. Patent No. 5,880,984 to Burchfiel et al. disclose a method and apparatus for performing high-precision multiply-add calculation using independent multiply and add instruments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (703) 305-5655. The examiner can normally be reached on M => F from 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Chat C. Do
Examiner
Art Unit 2124

May 29, 2003

CHUONG DINH NGO
PRIMARY EXAMINER